

FIG. 1 is a schematic diagram of a laser-based material processing system. The system includes a laser source (10) at the top, which emits a laser beam (12). The beam passes through a lens (12a) and a series of mirrors (14, 14a, 14b) to enter a processing chamber (18). Inside the chamber, the beam is focused by a lens (20) and a series of mirrors (22, 22a, 22b) onto a workpiece (26). The workpiece is supported by a base (28). A control system (30) is connected to the laser source and the processing chamber. The diagram is labeled with various reference numerals: 10, 12, 12a, 14, 14a, 14b, 16, 18, 18a, 18b, 20, 22, 22a, 22b, 24, 26, 26a, 26b, 28, 30, and A.

FIG. 1

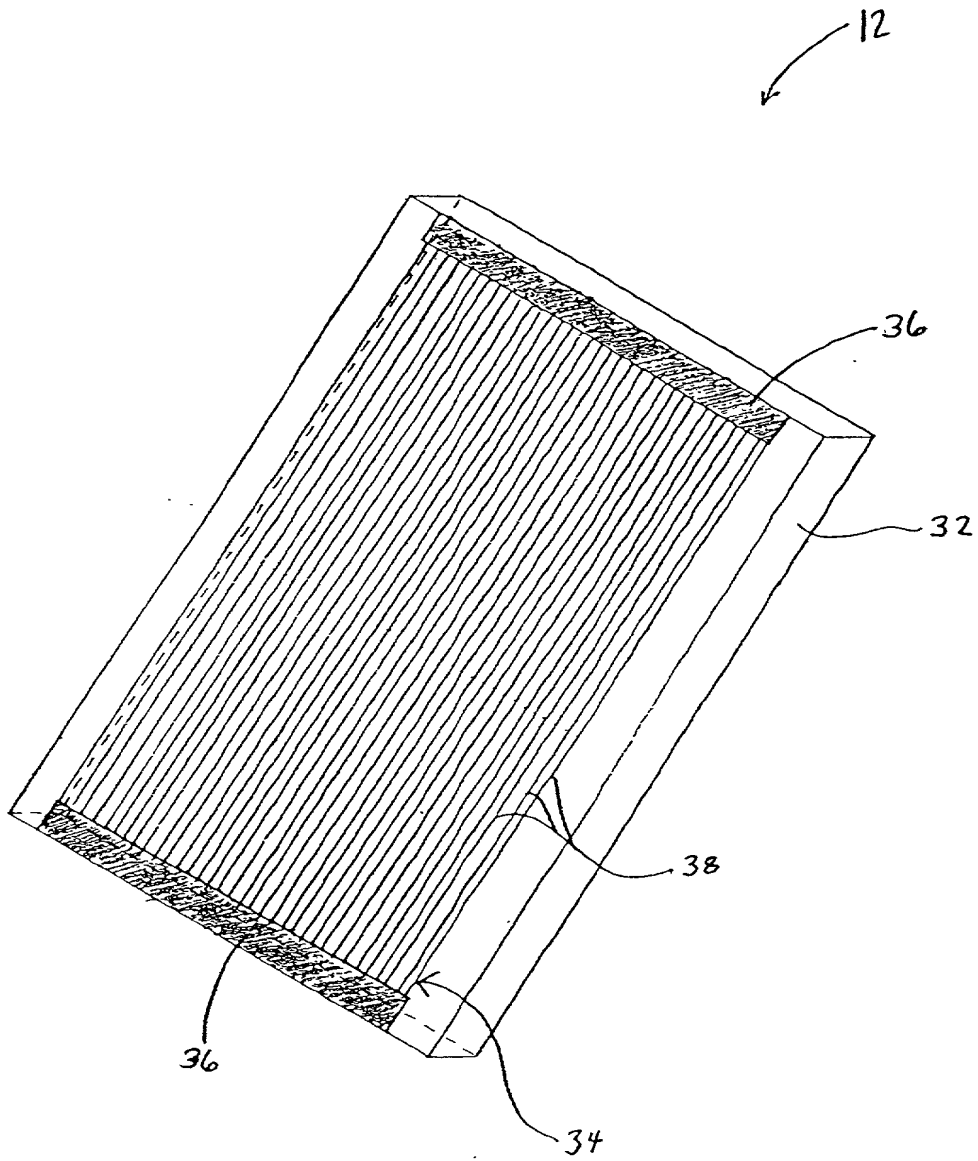


FIG. 2

10055875.042602

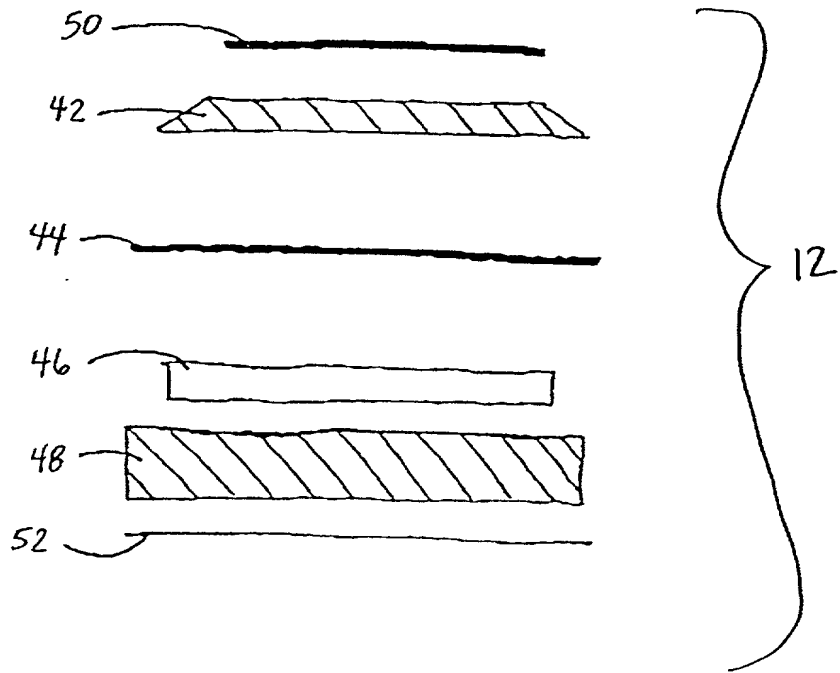


FIG. 3

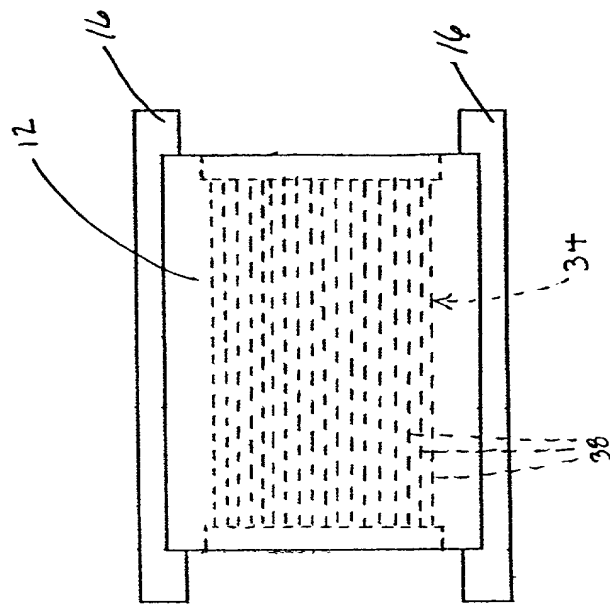


FIG. 4

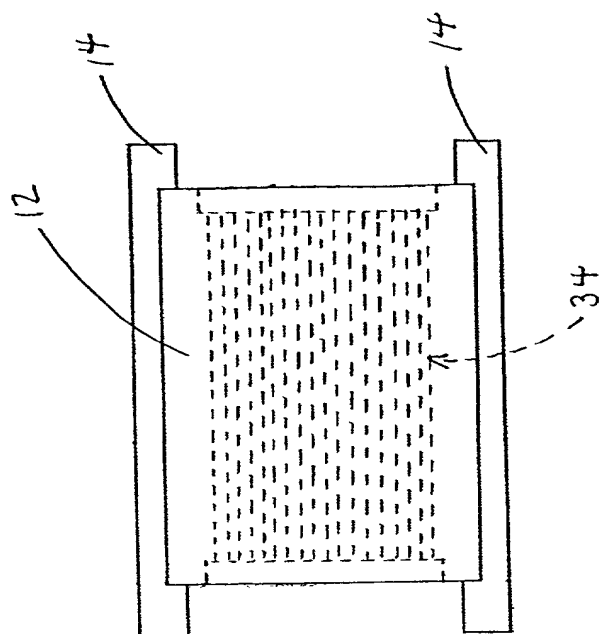


FIG. 5

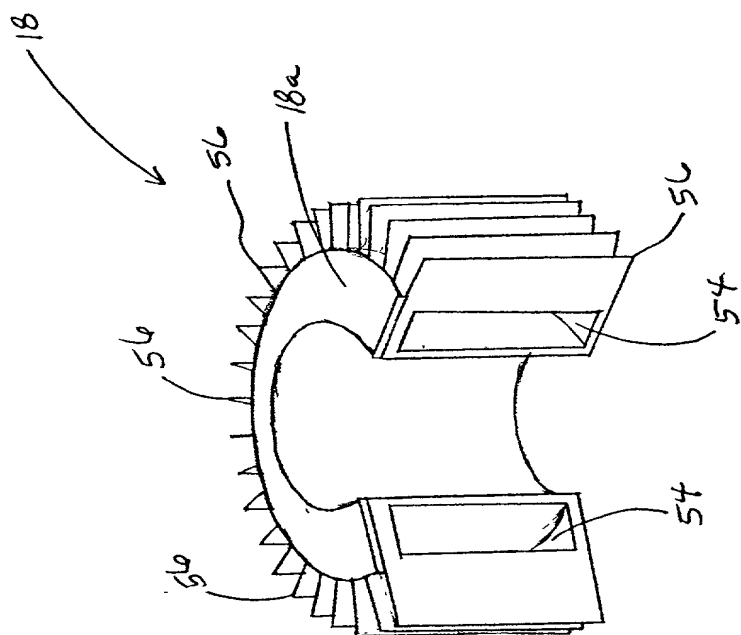


FIG. 6

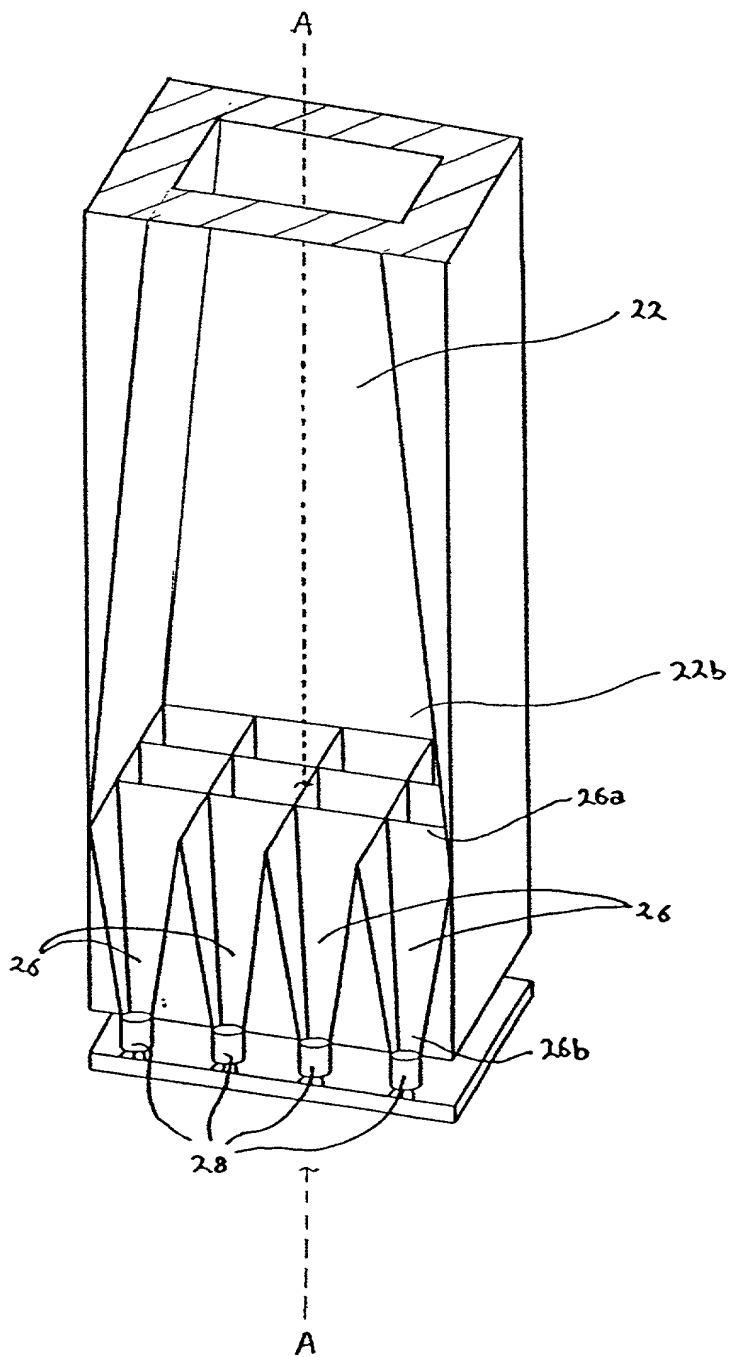


FIG. 6A

10055875.042600

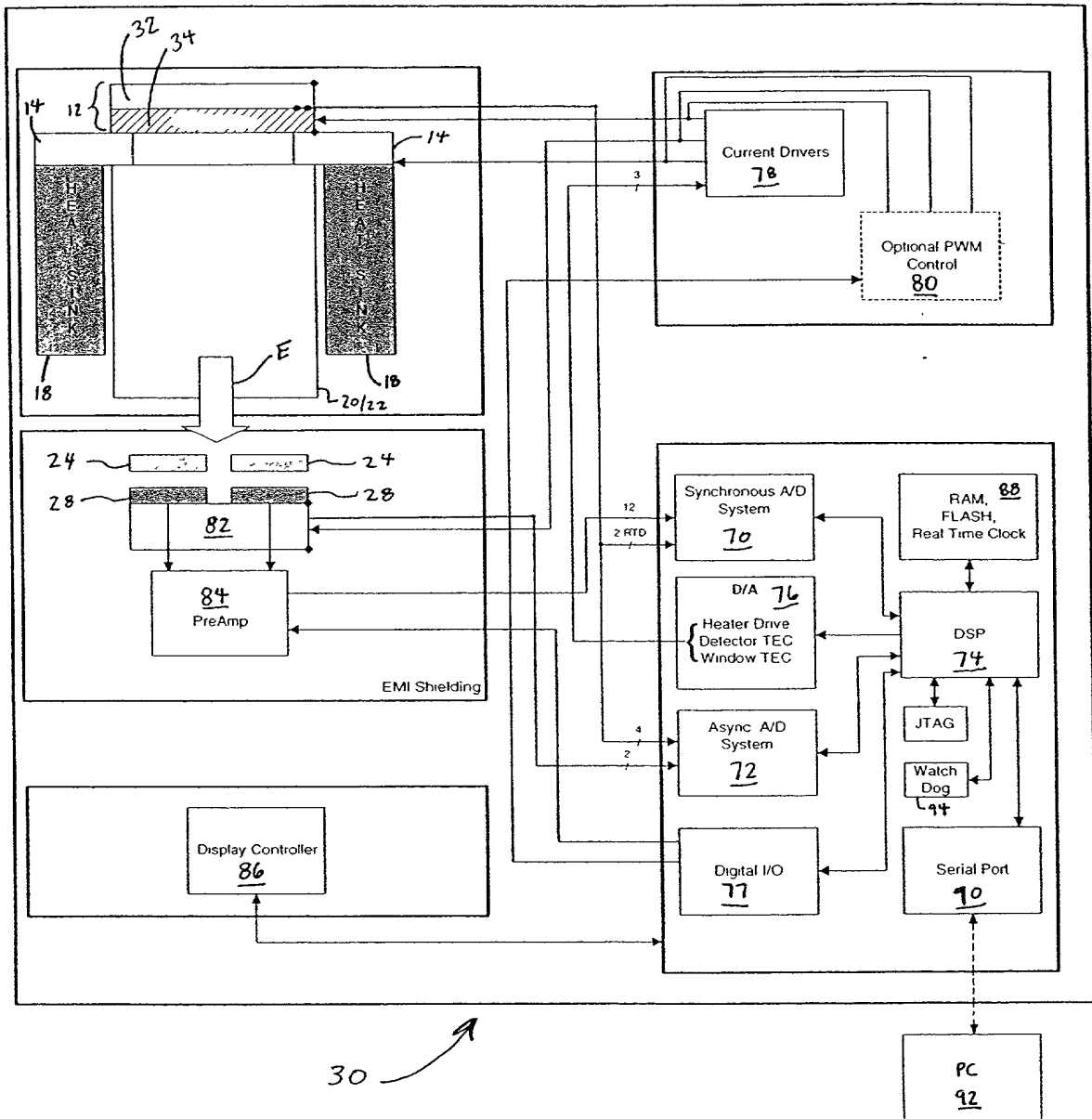
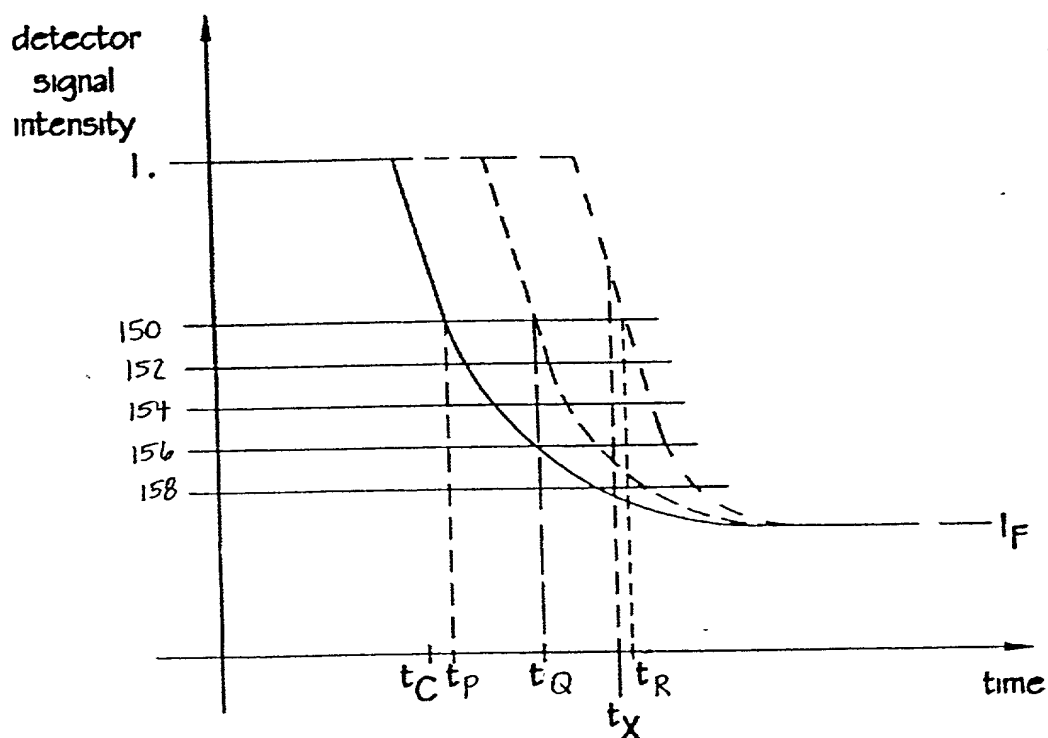


FIG. 7



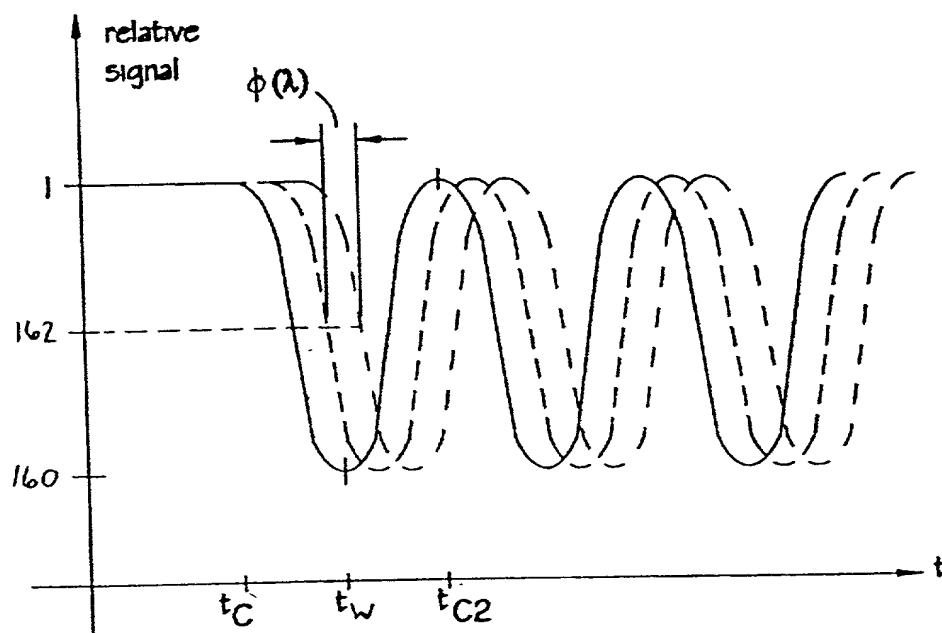
1005675-042602



P ————— surface tissue reference  $\lambda$  signal  
Q - - - - - analytical signal  
R - . . . . - deep tissue reference  $\lambda$  signal

Figure 8

1605875.042603



J ——— surface reference signal  
K - - - - - analytical signal  
L - . - . - deep tissue reference signal

Figure 9

10055675 042600

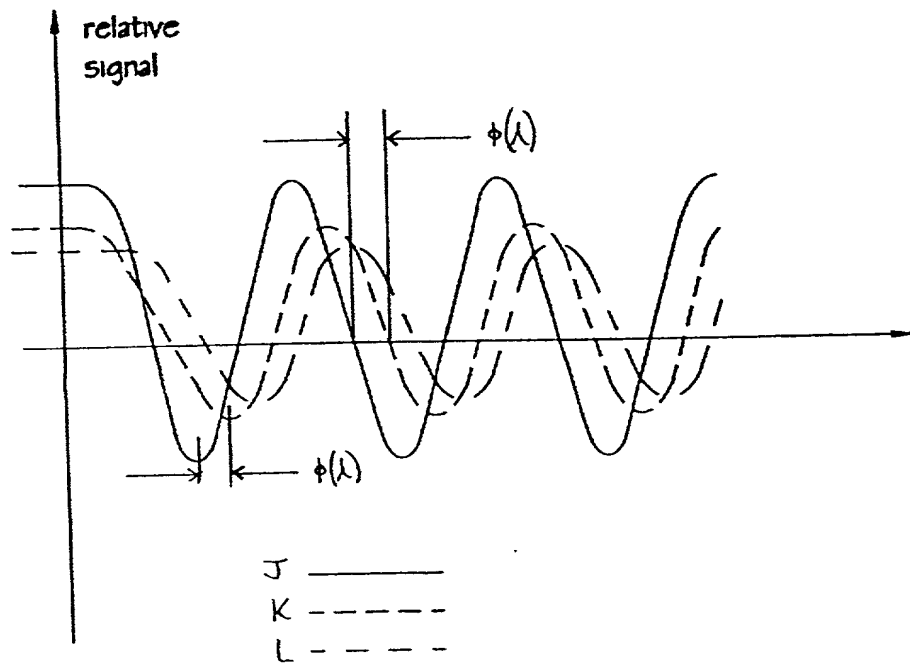


Figure 10

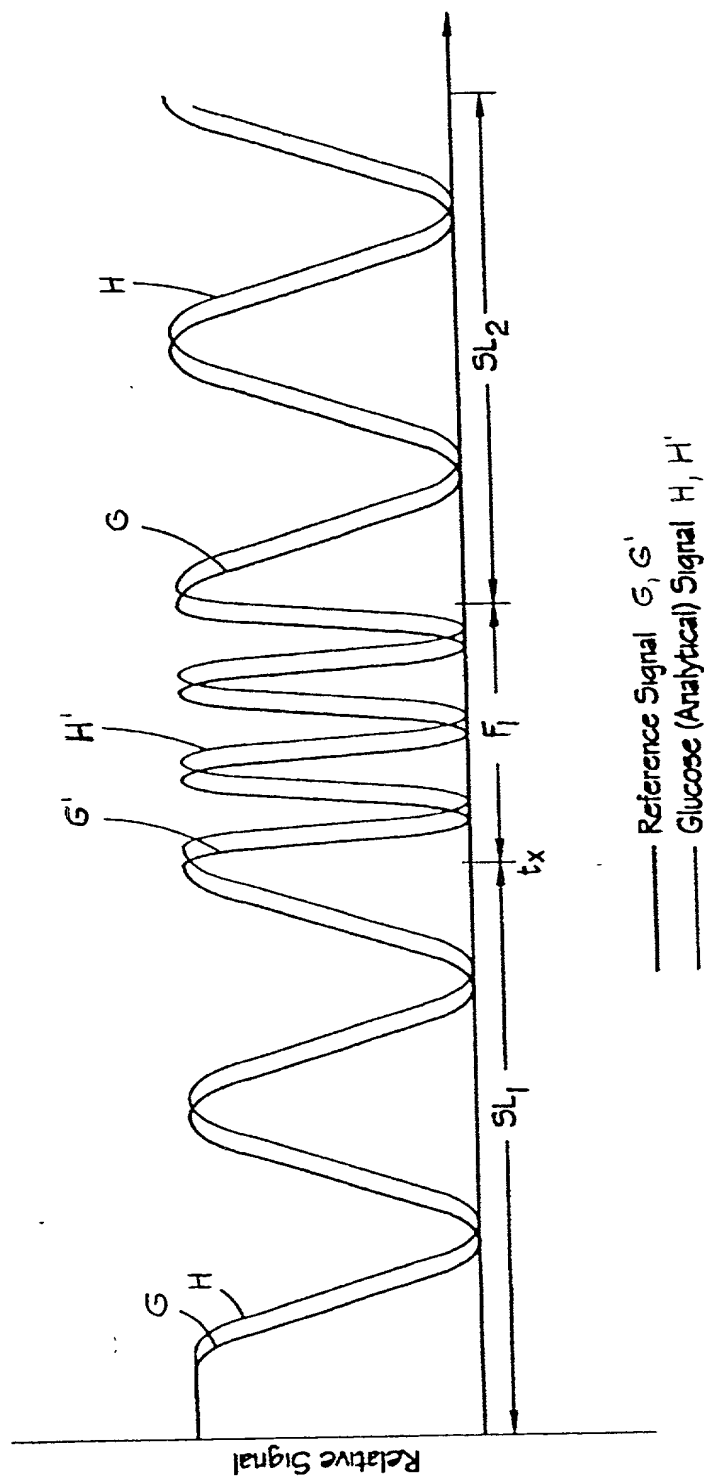


Figure 11

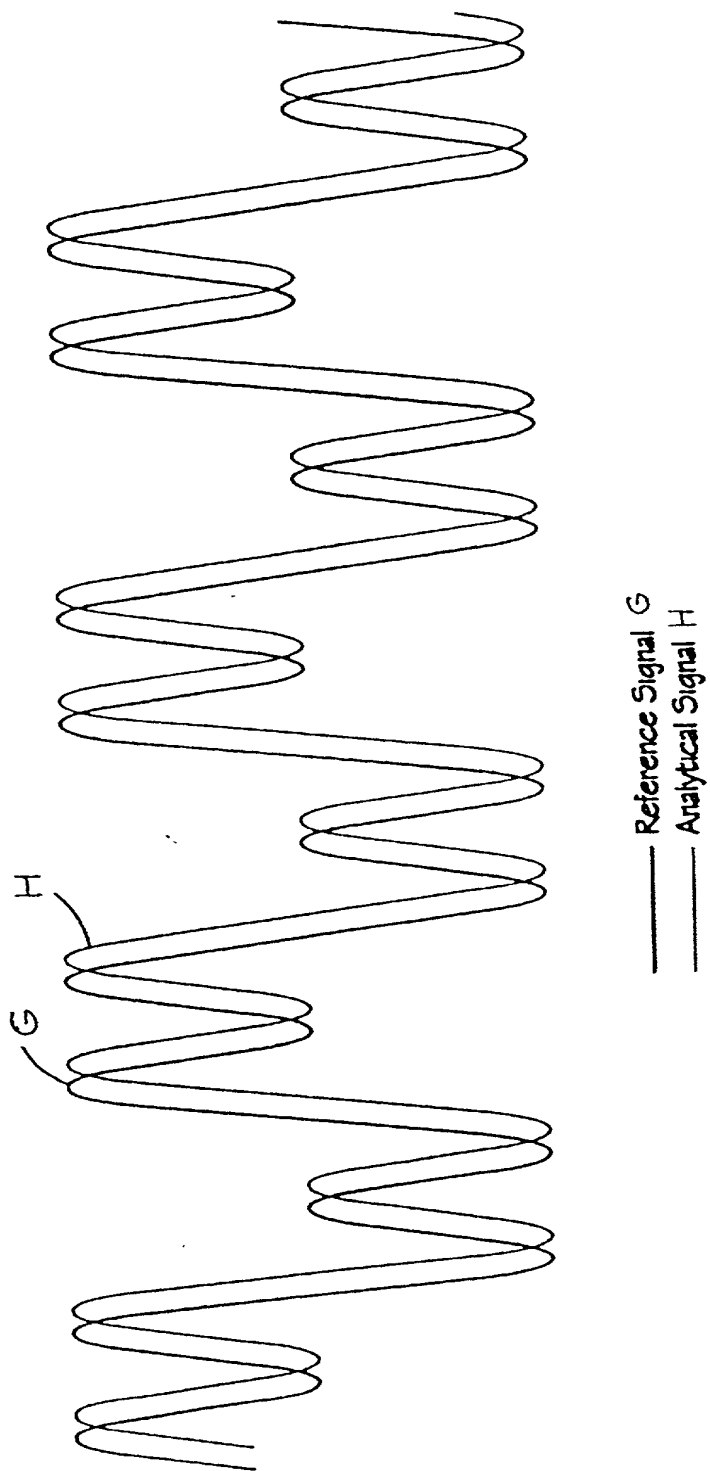


Figure 12

10055875.042603  
200240.5285004

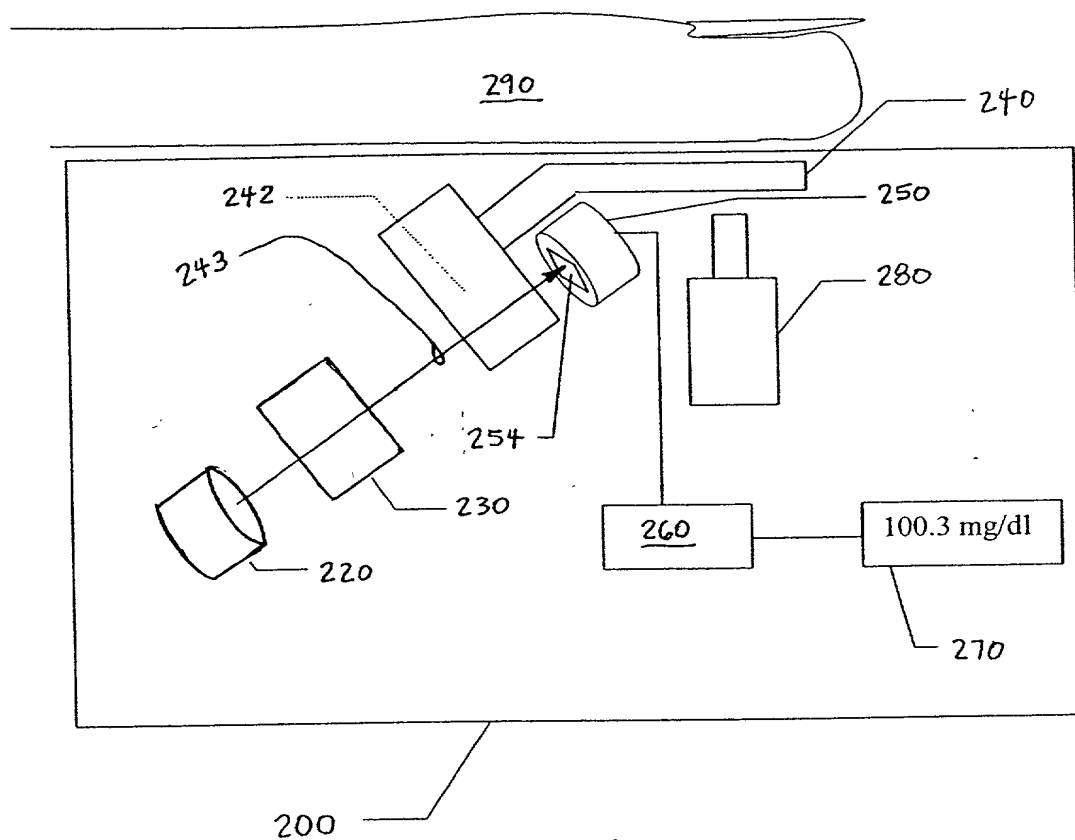


FIGURE 13

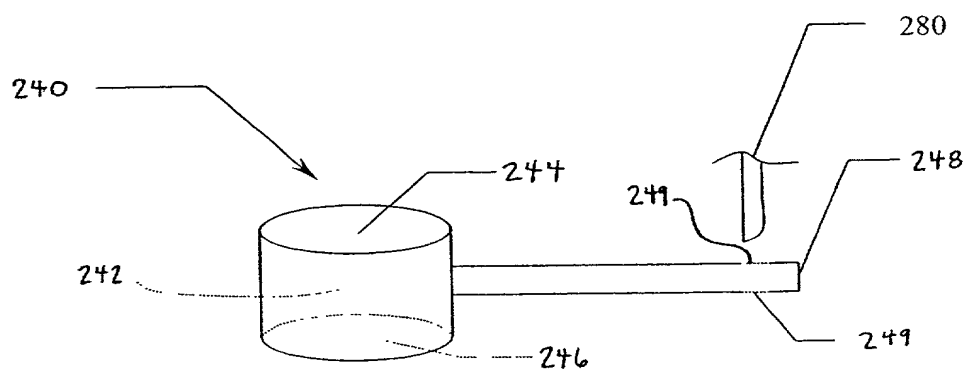


FIGURE 14

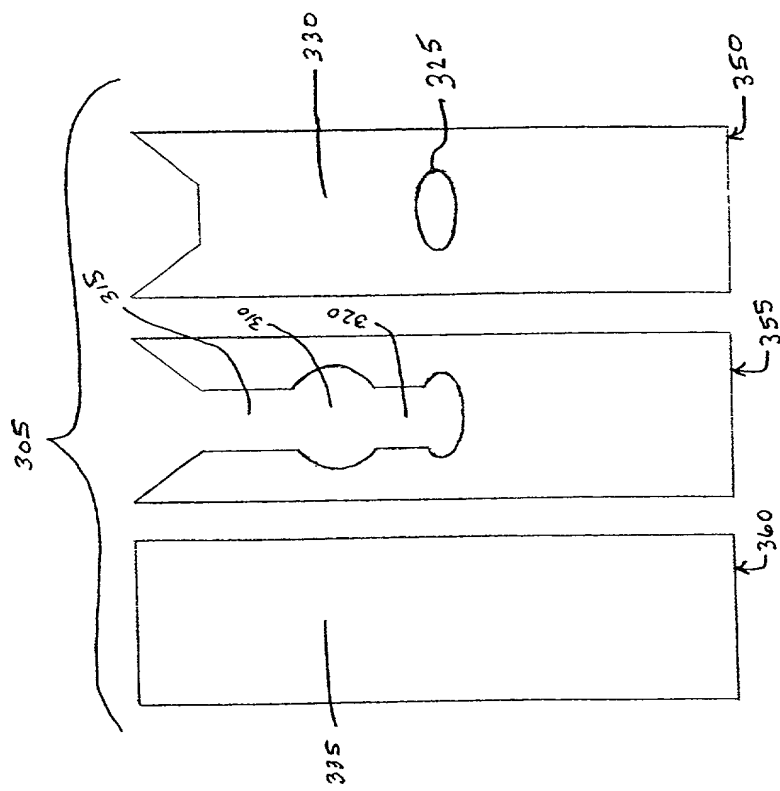


FIG. 16

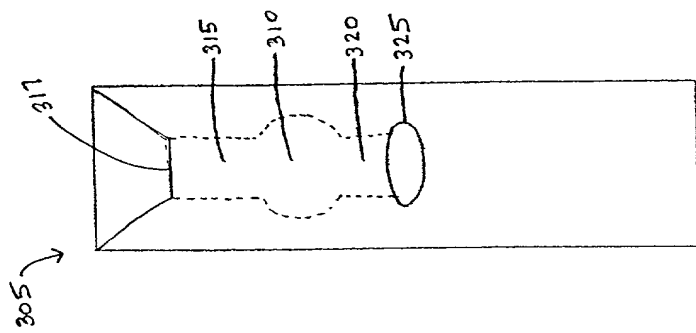


FIG. 15

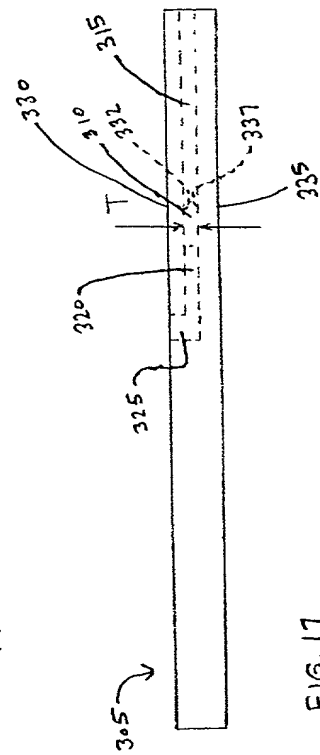


FIG. 17

10055575.042602

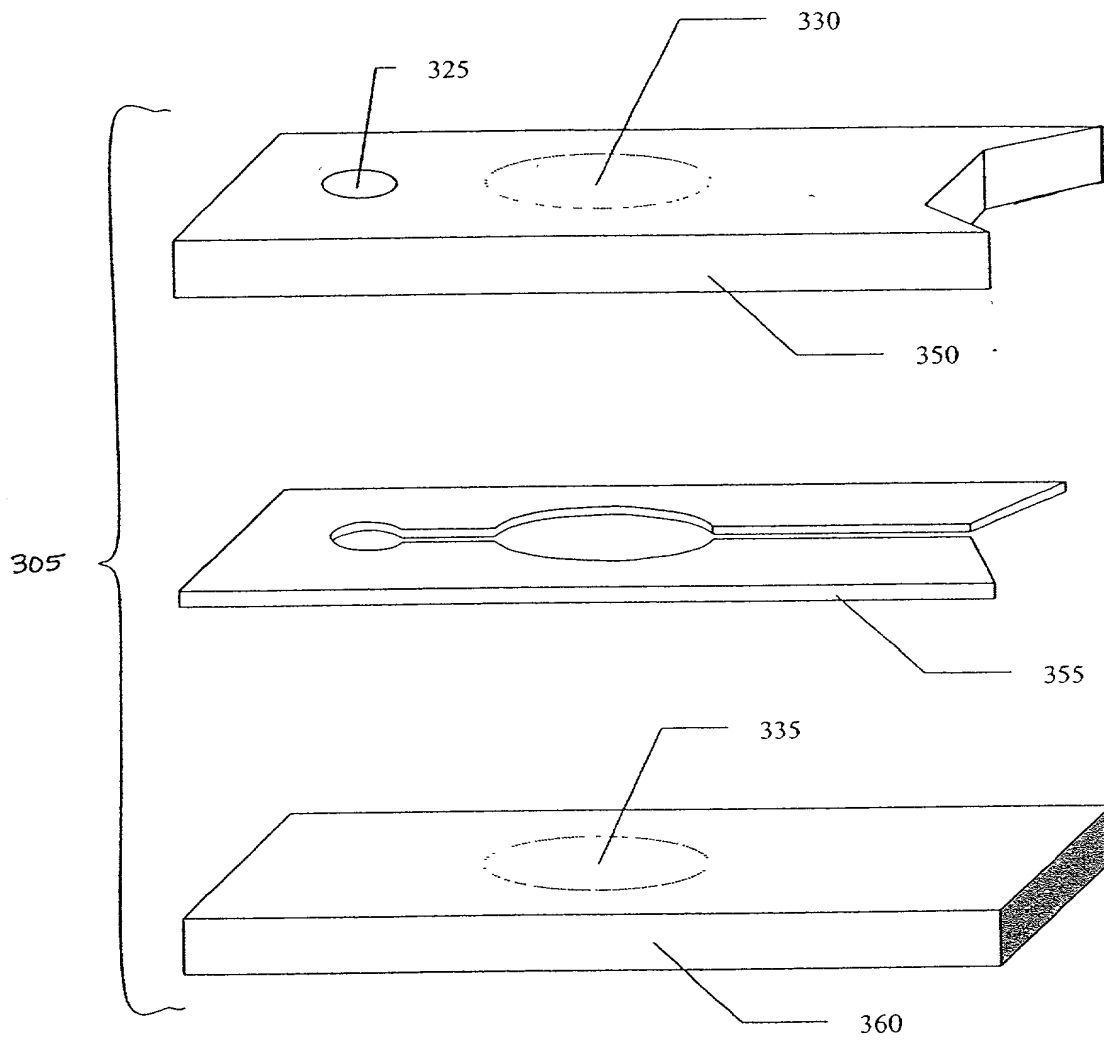


FIGURE 16A



2009105285001

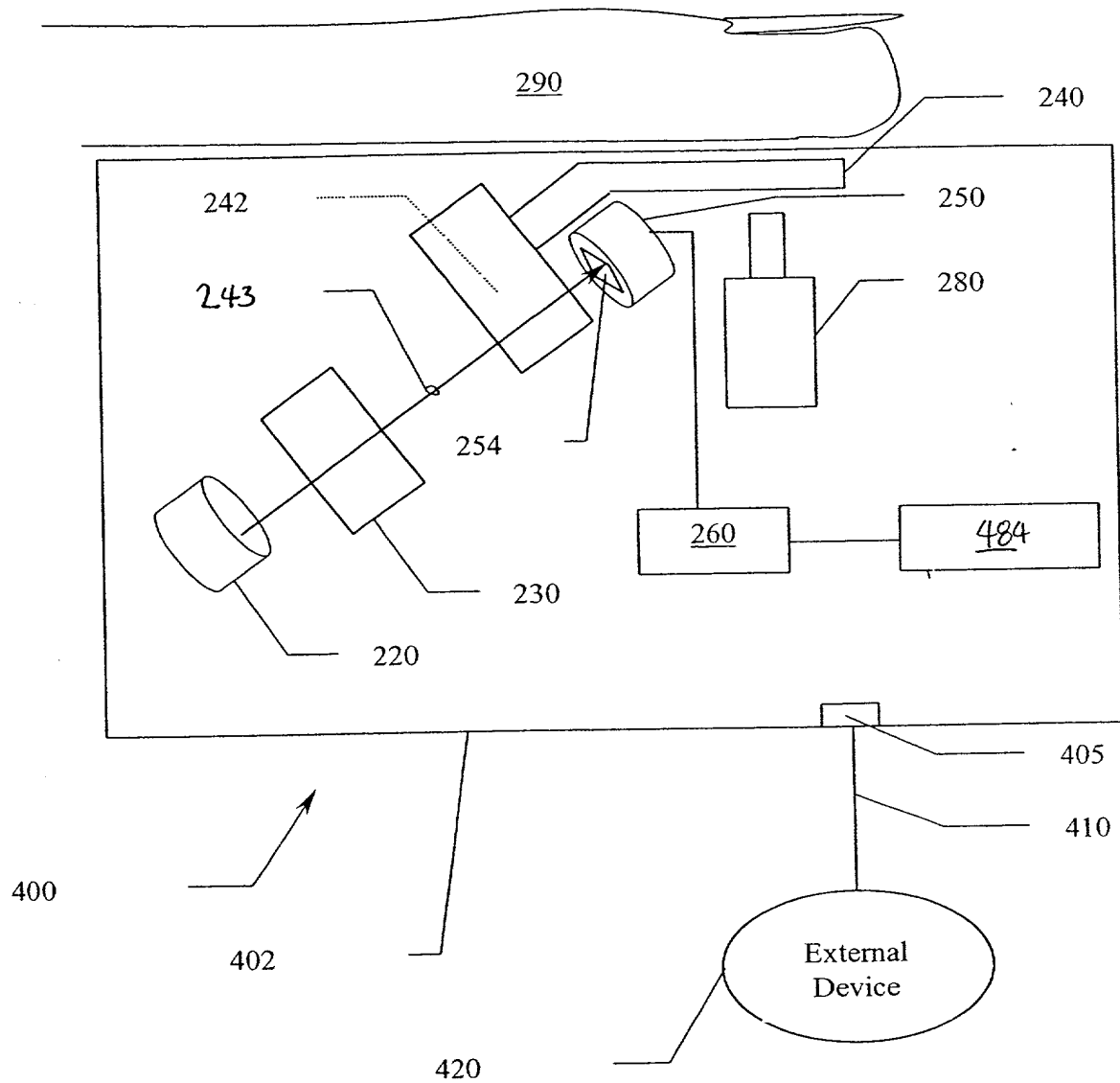


FIGURE 18

10035875.042600

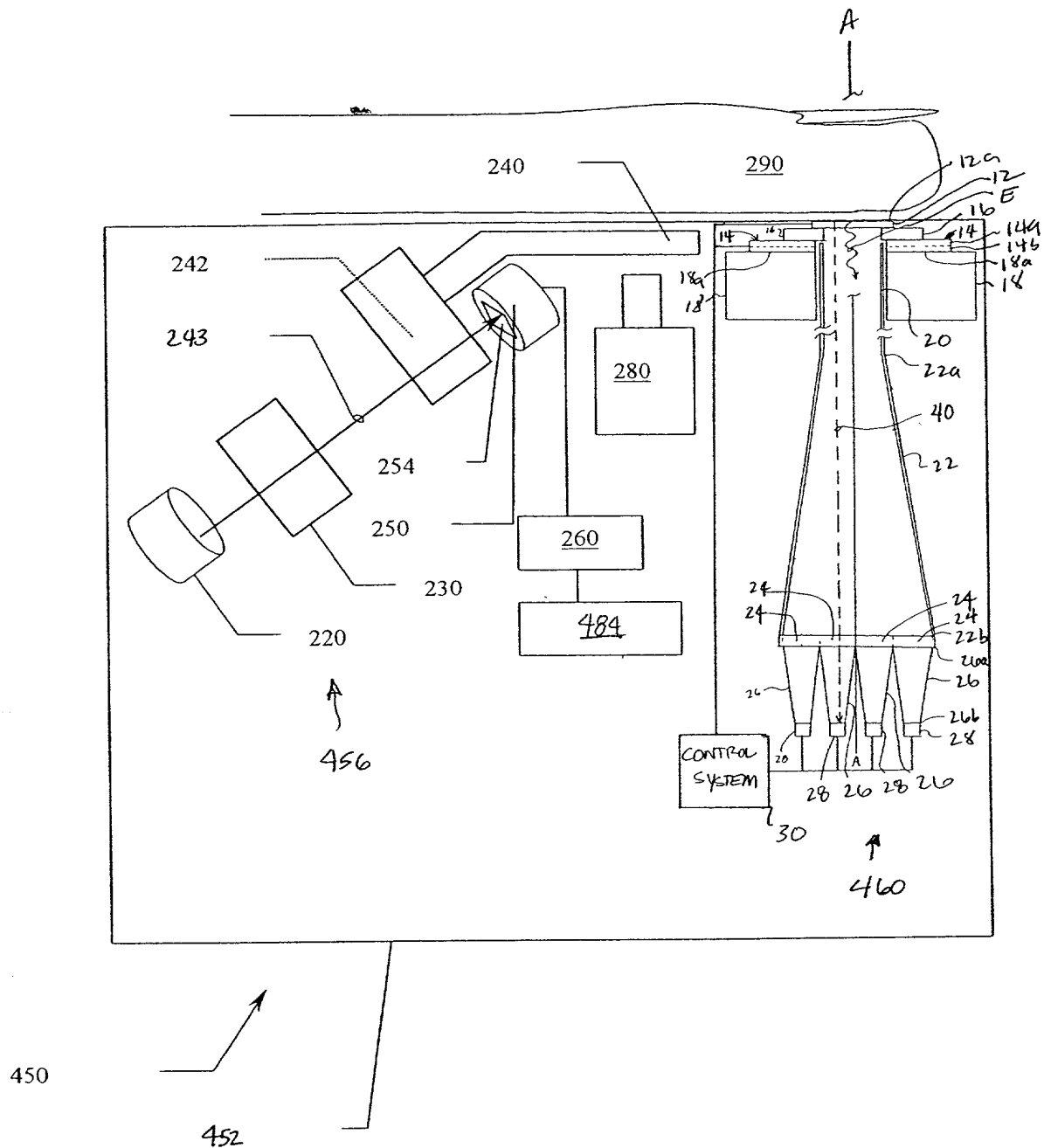


FIGURE 18A

10055875 042602

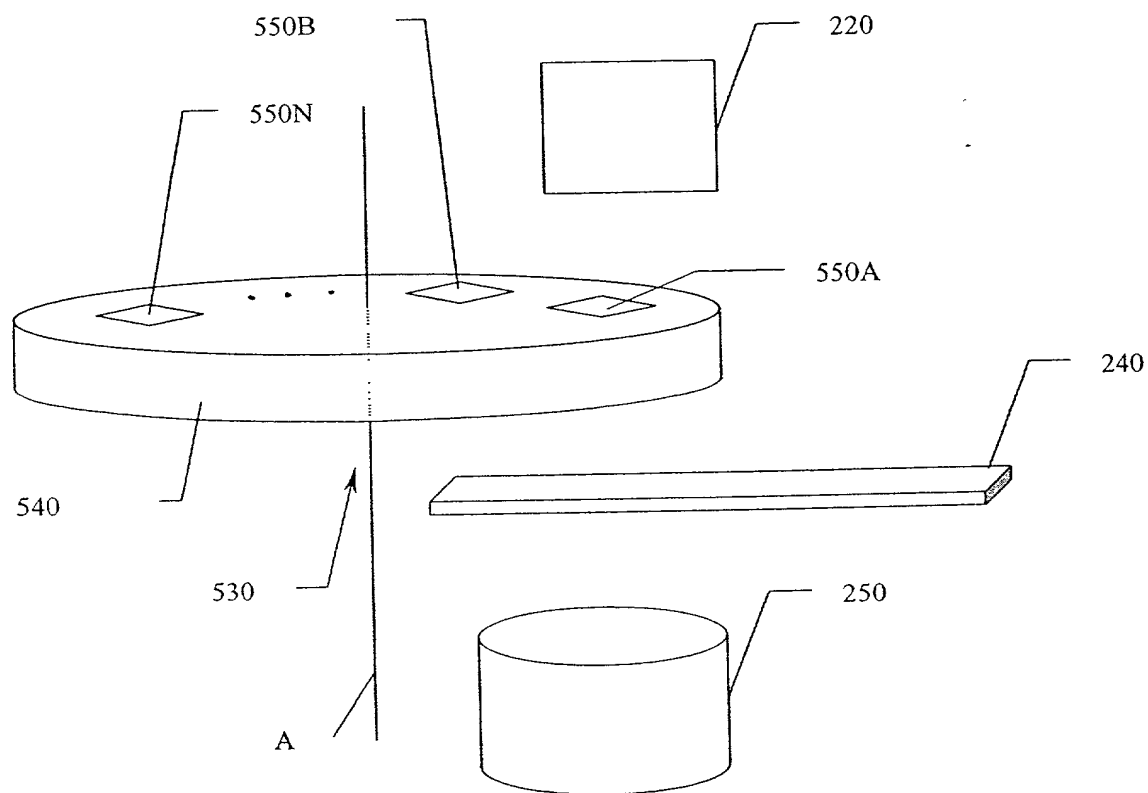


FIGURE 19

A cross-sectional view of a device. A central layer 610 is shown with a dashed centerline. Above it is a layer 615. A top layer 617 is on the right. A bottom layer 620 is on the left. A vertical line 330 passes through the center, with a point T at the top. A vertical line 335 passes through the center, with a point T at the bottom. A vertical line 619 is shown on the right. A vertical line 615 is shown on the right. A vertical line 617 is shown on the right. A vertical line 620 is shown on the left. A vertical line 605 is shown on the left.

FIGURE 20B

10055375-042606

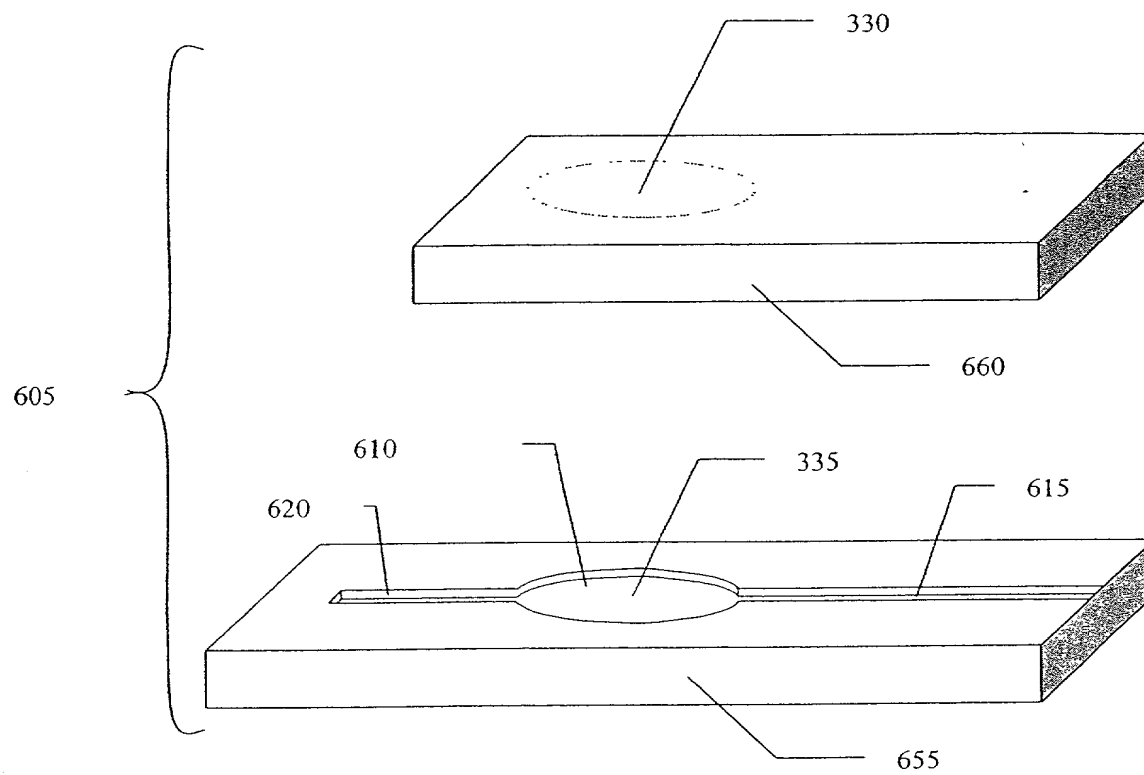


FIGURE 20C

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graph TD; 710[PROVIDE A WAFER HAVING ACCEPTABLE ELECTROMAGNETIC RADIATION TRANSMISSION PROPERTIES] --> 720[PROVIDE A SECOND WAFER HAVING ACCEPTABLE ELECTROMAGNETIC RADIATION TRANSMISSION PROPERTIES]; 720 --> 730[ETCH WAFER TO CREATE CUVETTES HAVING A BLOOD SUPPLY PASSAGEWAY, AN AIR VENT PASSAGEWAY, AND A SAMPLE CELL]; 730 --> 740[ATTACHED SECOND WAFER TO FIRST WAFER TO CREATE A WAFER ASSEMBLY]; 740 --> 750[MACHINE WAFER ASSEMBLY TO SEPARATE CUVETTES FROM EACH OTHER];
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710 PROVIDE A WAFER HAVING ACCEPTABLE ELECTROMAGNETIC RADIATION TRANSMISSION PROPERTIES

720 PROVIDE A SECOND WAFER HAVING ACCEPTABLE ELECTROMAGNETIC RADIATION TRANSMISSION PROPERTIES

730 ETCH WAFER TO CREATE CUVETTES HAVING A BLOOD SUPPLY PASSAGEWAY, AN AIR VENT PASSAGEWAY, AND A SAMPLE CELL

740 ATTACHED SECOND WAFER TO FIRST WAFER TO CREATE A WAFER ASSEMBLY

750 MACHINE WAFER ASSEMBLY TO SEPARATE CUVETTES FROM EACH OTHER

FIGURE 21

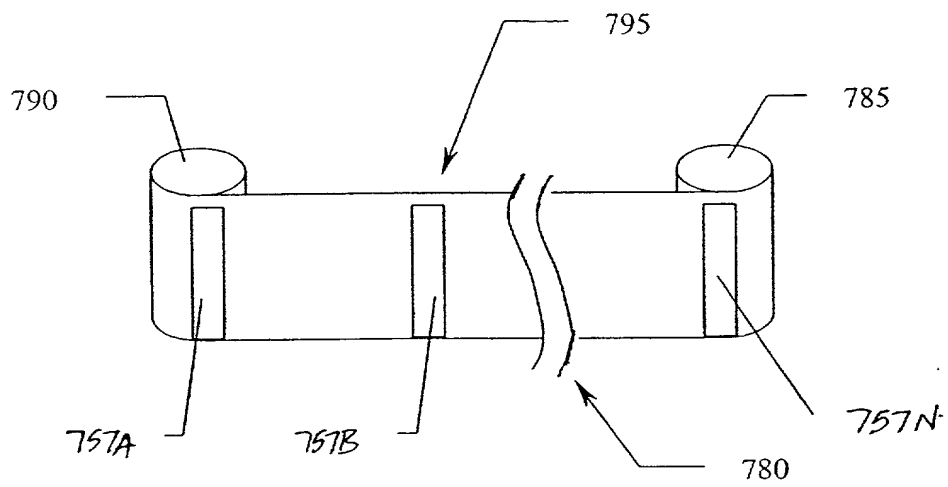


FIGURE 22

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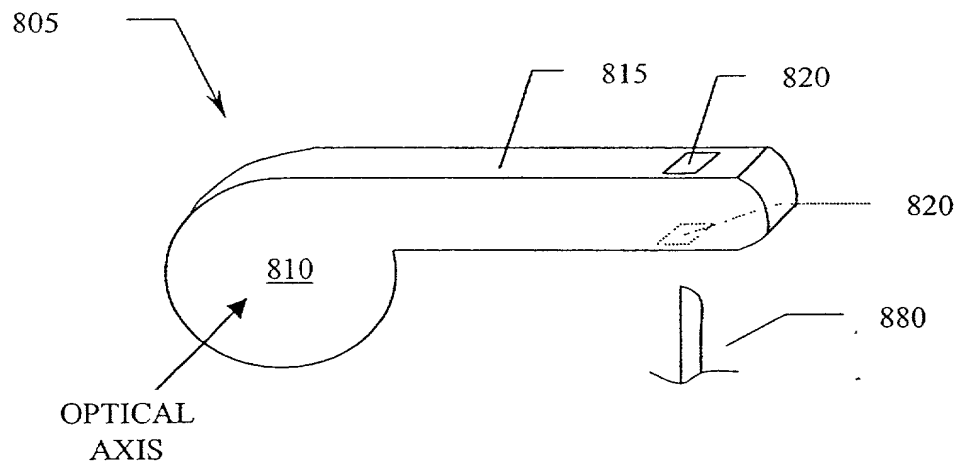


FIGURE 23A

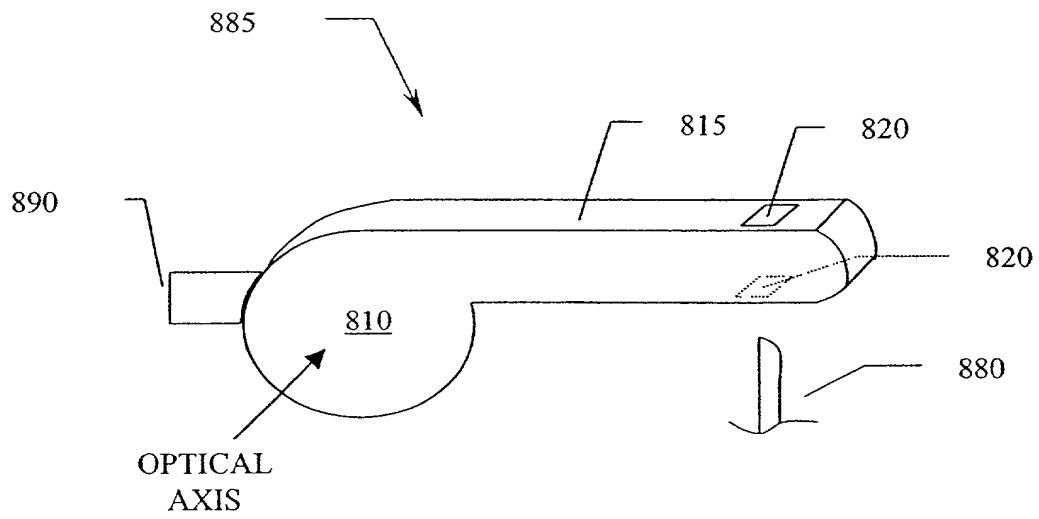


FIGURE 23B



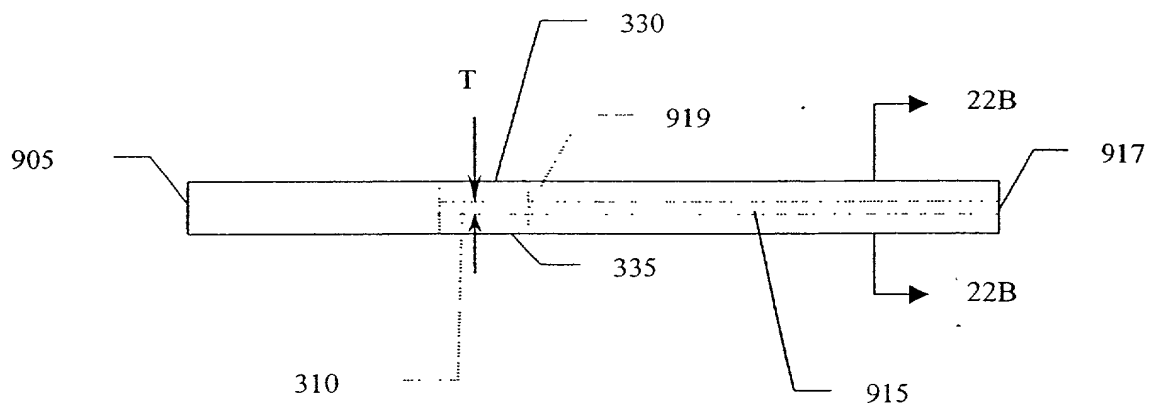


FIGURE 24A

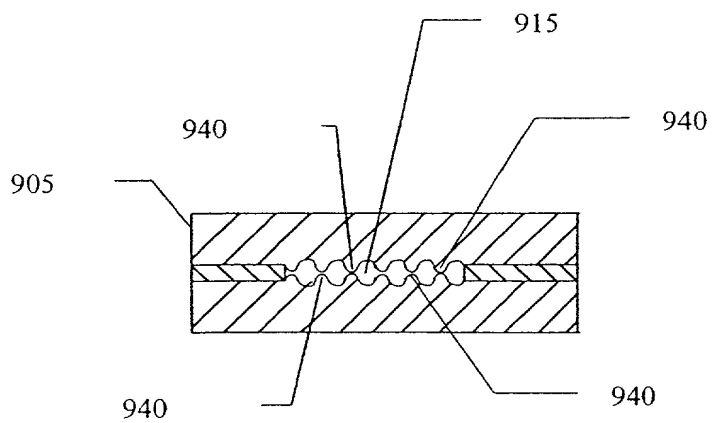


FIGURE 24B

10055075 042503

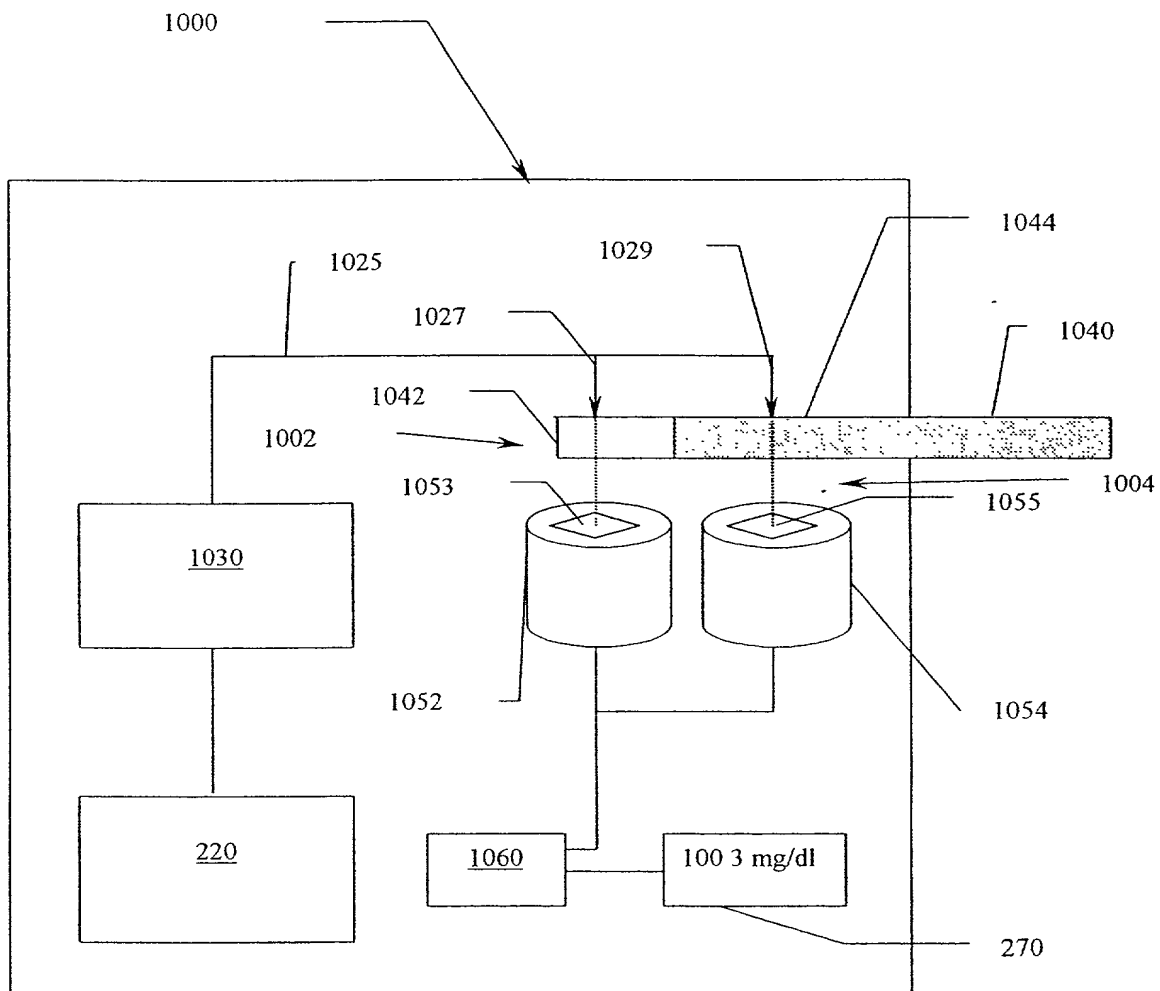


FIGURE 25

The diagram illustrates a system for measuring the concentration of a substance in a sample. The system includes a sample container (1100) with a sample (1125) and a measurement probe (1170) inserted into the sample. The probe is connected to a control unit (1127) and a display unit (1196). The display unit shows a concentration value of 100.3 mg/dl. The system also includes a data storage unit (220) and a processing unit (230).

FIGURE 26



10055875-042602  
209240-5785001

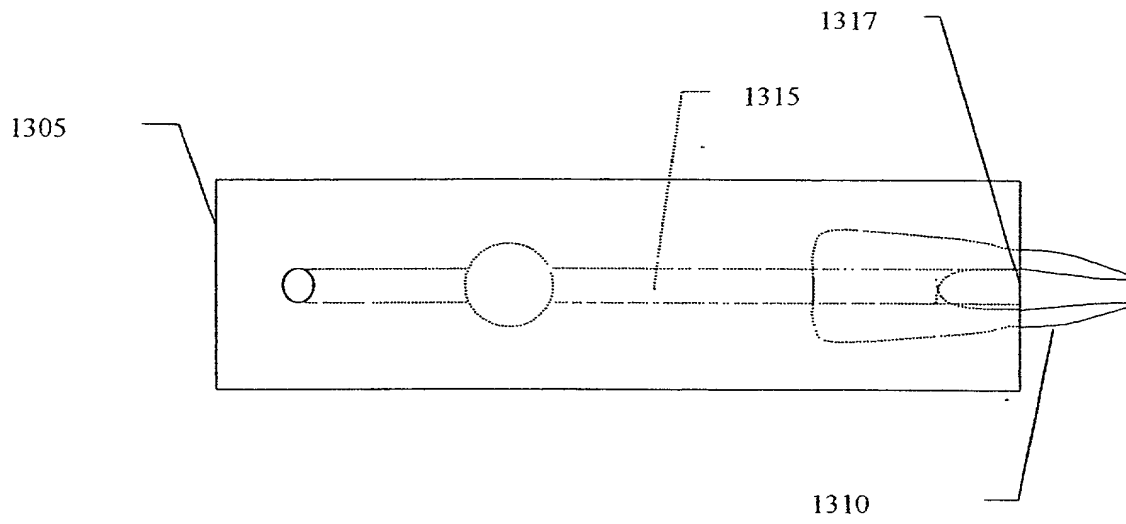


FIGURE 28

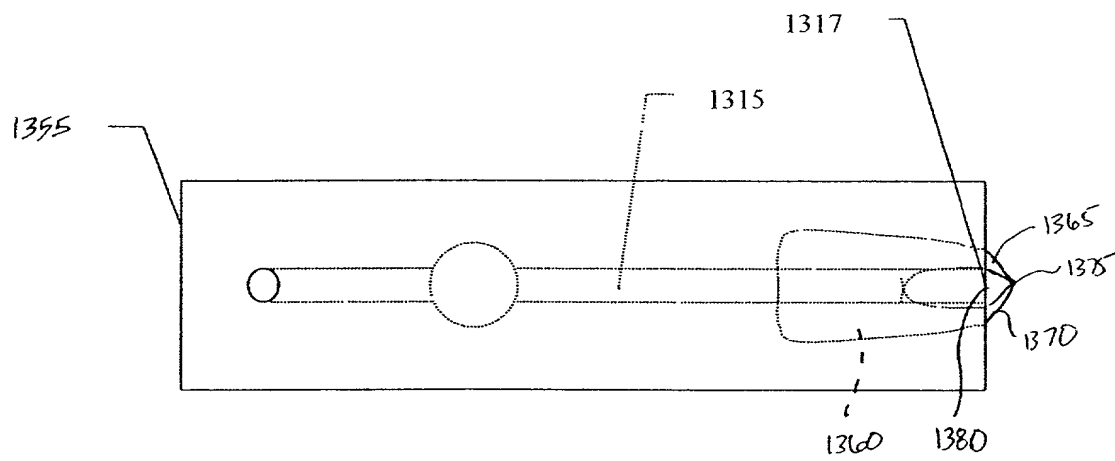


FIGURE 28A

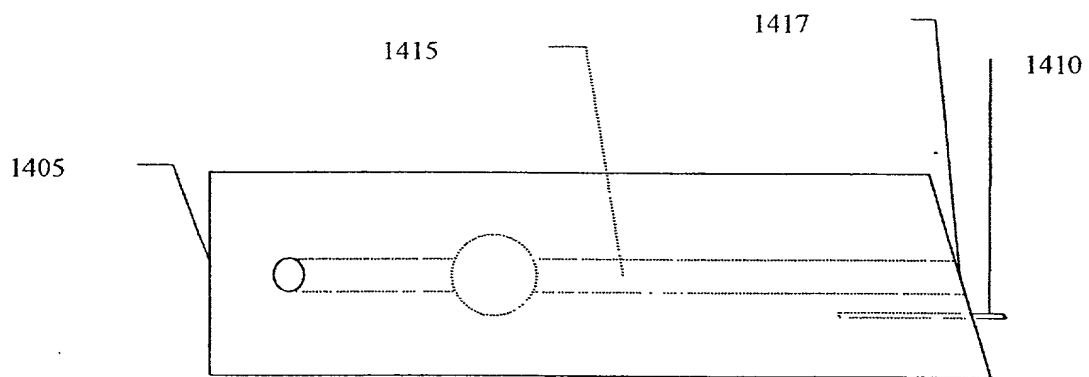


FIGURE 29

### Error Vs. Measurement Time

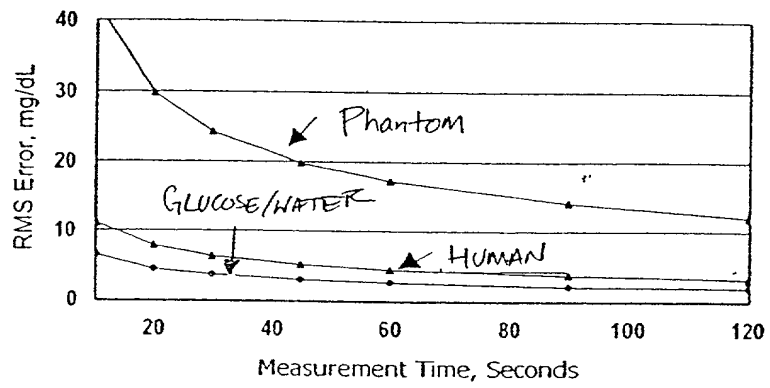


FIGURE 30